

CLAIMS

We claim:

1. A computer system for applying mode bias to an input field of an electronic document of an application, the system comprising:
  - 5 a schema registry connected to the application; and
  - an input engine connected to the schema registry, wherein the schema registry receives a schema name from the application, locates a grammar associated with the schema name and sends the grammar to the input engine.
- 10 2. The system of claim 1 wherein the input engine is a speech recognition engine.
3. The system of claim 1 wherein the input engine is a handwriting recognition engine.
- 15 4. The system of claim 1 wherein the input engine is an input method editor (IME).
5. The system of claim 1 wherein the input engine is keypad of a cellphone.
- 20 6. The system of claim 1 wherein the input engine is gesture-based input method.
7. The system of claim 1 wherein the input engine is sign language recognition engine.
- 25 8. The system of claim 1 wherein the schema registry comprises a schema database and a grammar database, wherein the schema database comprises a plurality of schema names and a plurality of pointers to grammars associated with the plurality of schema names and wherein the pointers point to the grammar database comprising a plurality of grammars.

9. The system of claim 1 wherein the grammar is a context free grammar.

10. The system of claim 1 wherein the grammar is a context sensitive grammar.

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11. The system of claim 1 wherein the grammar is a regular expression.

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12. The system of claim 1 wherein the grammar is a statistical language model.

13. The system of claim 1 wherein the grammar defines an appropriate input for the input field.

14. The system of claim 13 wherein the grammar defines an appropriate input for the input field by defining a list of acceptable inputs for the input field.

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16. The method of claim 15 wherein the input engine uses the grammar to receive input from a user of the application.

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17. The system of claim 15 wherein the input engine compares the input of the user to the grammar to determine whether the input matches and is an appropriate input.

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18. The system of claim 17 wherein if the input engine determines that the input of the user does not match an appropriate input, then the input engines rejects the input and causes the application to display an error message to the user.

19. The system of claim 1 wherein the schema registry is connected to the application through a text service framework.

20. A computer system for applying mode bias to an input field of an electronic document of an application, the system comprising:

5           a schema registry connected to the application; and

an input engine connected to the schema registry, wherein the schema registry receives a schema name from the application, locates an identifier of a grammar associated with the schema name and sends the identifier of the grammar to the input engine.

21. A computer-implemented method for applying mode bias to an input field of an electronic document of an application program module, the method comprising the steps of:

- determining that an insertion point is within the input field;
- 5 determining a mode bias schema that is attached to the input field;
- determining a grammar that is associated with the mode bias schema; and
- sending the grammar to an input engine wherein the input engine uses the grammar to receive input for the input field.

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22. The method of claim 21 wherein the input engine uses the grammar to receive input for the input field comprises receiving text at the insertion point and determining whether the received text matches an input type defined by the grammar and, if so, then displaying the text in the input field.

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23. The method of claim 22 further comprising the step of:  
if the text received at the insertion point does not match the input type defined by the grammar, then displaying an error message.

20 24. The method of claim 21 wherein the step of determining a grammar that is associated with the mode bias schema comprises:

cross-referencing the mode bias schema in a schema database to determine the grammar that is associated with the mode bias schema.

25 25. The method of claim 24 wherein the step of sending the grammar to an input engine comprises retrieving the grammar from a grammar database and sending the grammar to the input engine.

26. A computer-readable medium on which are stored computer-readable instructions for performing the steps of claim 25.

27. A computer-implemented method for determining a semantic category of a string in an electronic document based upon a mode bias schema comprising the steps of:  
    retrieving a mode bias schema and an associated grammar;  
    determining whether the string conforms to the definition of input defined by the  
5    grammar;  
    if so, then associating the mode bias schema with the string in the document; and  
    saving the mode bias schema as a semantic category label in association with the  
string.

10 28. The method of claim 27 further comprising the step of displaying a plurality of actions in association with the semantic category label.

15 29. The method of claim 27 wherein the mode bias schema and the associated grammar are retrieved from a schema registry.

30. The method of claim 27 wherein the mode bias schema comprises an XML schema.